STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT
LANSING

RICK SNYDER
GOVERNOR

March 2, 2011

Ms. Kristen Mariuzza
Kennecott Eagle Minerals Company
504 Spruce Street
Ishpeming, Michigan 49849

Dear Ms. Mariuzza:

On March 1, 2011, you contacted the Department of Natural Resources and Environment (DNRE), Water Resources Division (WRD), regarding the Callahan Mine Administrative Consent Order (ACO-SW92-018). To summarize that conversation, we offer the following:

1. This Administrative Consent Order terminated on December 1, 1996, provided that all elements in the ACO were met.

2. Since Callahan fulfilled all elements of the ACO, it has terminated.

If you have any questions or concerns, please feel free to contact me via telephone at the number below, via email at caseys@michigan.gov, or via mail at DNRE – WRD, Upper Peninsula District Office, 420 5th Street, Gwinn, Michigan 49841.

Sincerely,

Steve Casey
Upper Peninsula District Supervisor
Water Resources Division
906-346-8535

SC:TC
cc: Mr. Clif Clark, DNRE
Mr. Randy Conroy, DNRE
File: NPDES, Kennecott Humboldt Mill, Marquette County, Correspondence

Steve, you had requested I initiate the process for termination of the Consent Order for Callahan Mining Corporation.

ACO-SW92-018 (ACO) for Callahan consisted of schedule of compliance conditions 14-23 and economic settlement conditions of 24-29.
Callahan's Humboldt Pit surface water discharge was to be resolved by conditions 15, 17-21 which required studies of effluent limits, tailings, and proposal for a wastewater treatment system subsequent to public noticing of a reissued NPDES Permit. On February 27, 1995, Callahan requested the NPDES application be placed on hold.

- After Couer d'Alene Mines Corporation purchased Callahan, they initiated a chemical additive for the treatment of metals at the Humboldt Pit and continued to test the discharge quality, it was determined they could meet site specific limits. Subsequently, the discharge met site specific limits without active treatment. DEQ staff provided results of discharge testing from June of 1997 and 1998 in a letter dated November 24, 1998 and stated the (inactive mine) site could be regulated with a NPDES storm water authorization (currently MIS210034).
- A similar process occurred for the Ropes Mine location which was also subject to the ACO. The individual Permit was terminated on January 31, 2000. The current storm water authorization is MIS310602.
- Finally, condition 16 of the ACO required a status report on the quality of groundwater in the vicinity of Humboldt Mill, including where pyrite tailings were stored, with a proposal for remediation, if needed. On May 11, 1995, ERD staff requested a remedial investigation. On July 27, 2001, Couer requested approval of an interim response to consolidate all pyrite stock piles to one location which was *accepted by ERD.*

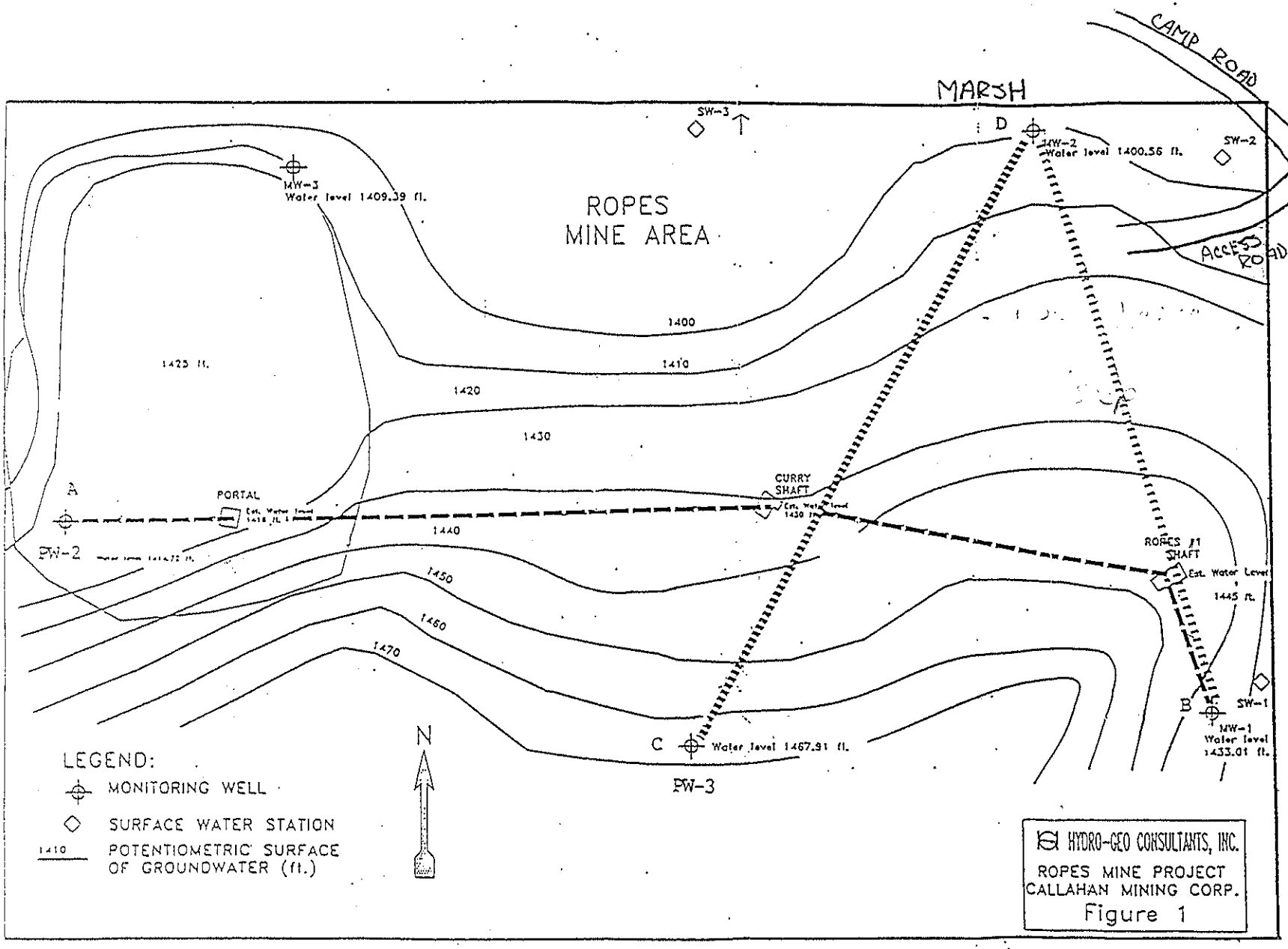
The file did not contain a record of whether the environmentally beneficial projects of $50,000 required in condition 26 and outlined in condition 22, were conducted.

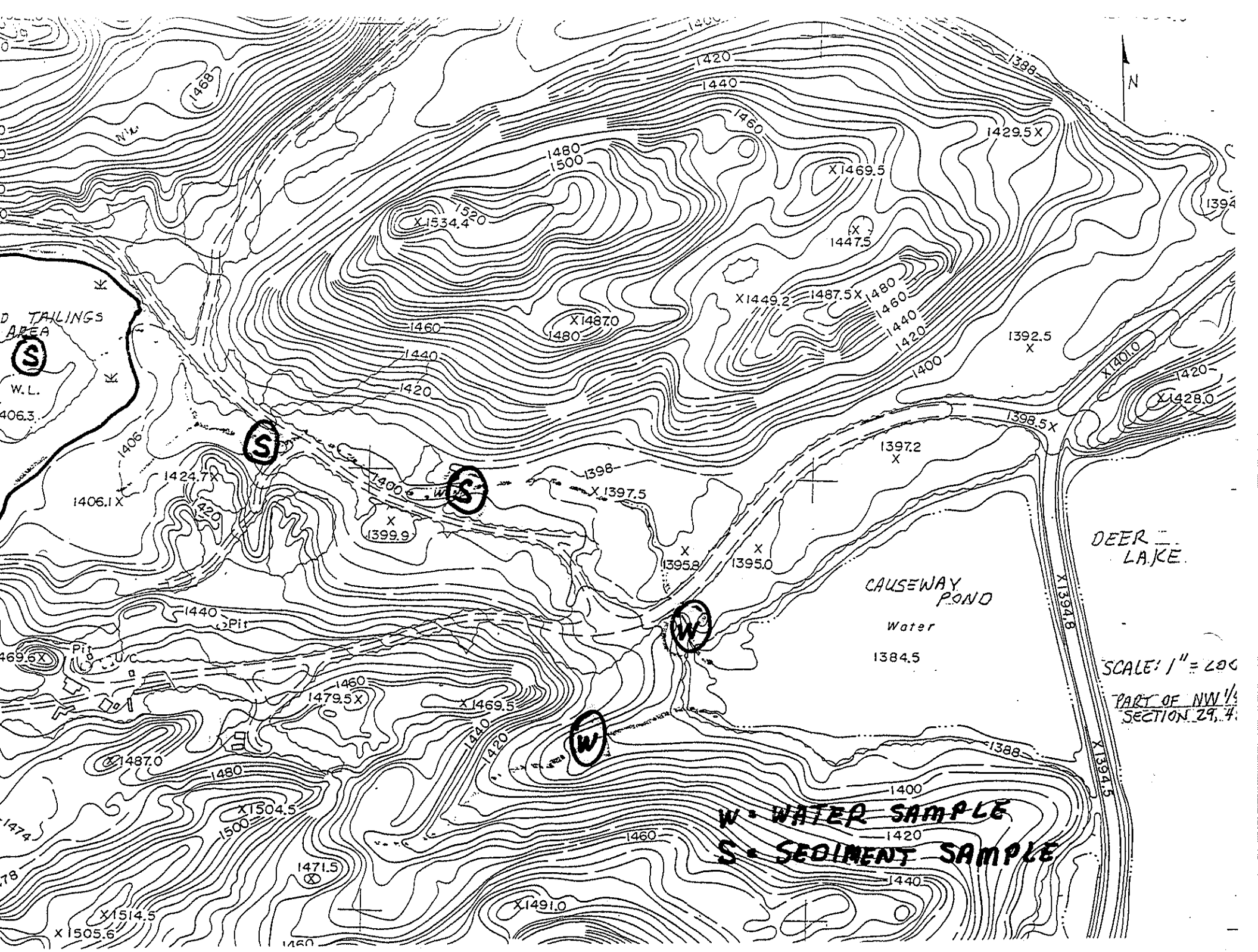
I recommend we use this correspondence to interested parties to identify the ACO has expired. The ACO was to expire on December 1, 1996, provided all elements were met. The ACO remained in place until the NPDES Individual Permit for the mine locations was resolved with conversion to storm water authorization. Stipulated penalties ($500/day) pertained to conditions 20 and 21 of the ACO, which were specific to potential wastewater treatment construction and effluent limits. Stipulated penalities ($100/day) pertained to conditions 14-19 of the ACO, which were specific to discharge, groundwater quality, tailings, and commencing construction of approved wastewater treatment if required. Let me know if you have insight to the environmental projects or have additional questions.

Randy Conroy
Water Resources Div - MDNRE
conroyr@michigan.gov

phone 906-346-8527
fac 906-346-4480

420 5th Street
Gwinn, MI 49841


CAMP ROAD
MARSH
SW-3
D
MW-2
Water level 1400.56 ft.
SW-2
MW-3
Water level 1409.39 ft.
ROPES
MINE AREA
ACCESS ROAD
Seep
1400
1410
1420
1430
1425 ft.
A
PORTAL
CURRY
SHAFT
1440
PW-2
ROPES #1
SHAFT
Est. Water Level
1445 ft.
1450
1460
1470
B
SW-1
MW-1
Water level
1433.01 ft.
C
Water level 1467.91 ft.
PW-3
N
LEGEND:
MONITORING WELL
SURFACE WATER STATION
1410 POTENTIOMETRIC SURFACE OF GROUNDWATER (ft.)
HYDRO-GEO CONSULTANTS, INC.
ROPES MINE PROJECT
CALLAHAN MINING CORP.
Figure 1


N
TAILINGS AREA
W.L.
406.3
1406.1X
1424.7X
1399.9
X1397.5
1395.8
1395.0
CAUSEWAY POND
Water
1384.5
DEER LAKE
1397.2
1398.5X
1392.5
X1401.0
X1428.0
1429.5X
X1469.5
1447.5
X1449.2
1487.5X
X1487.0
X1534.4
1479.5X
X1504.5
1471.5
X1514.5
X1505.6
X1491.0
X1394.8
X1394.5
Pit
S
W
W • WATER SAMPLE
S • SEDIMENT SAMPLE
SCALE: 1" = 200
PART OF NW 1/4 SECTION 29, 4

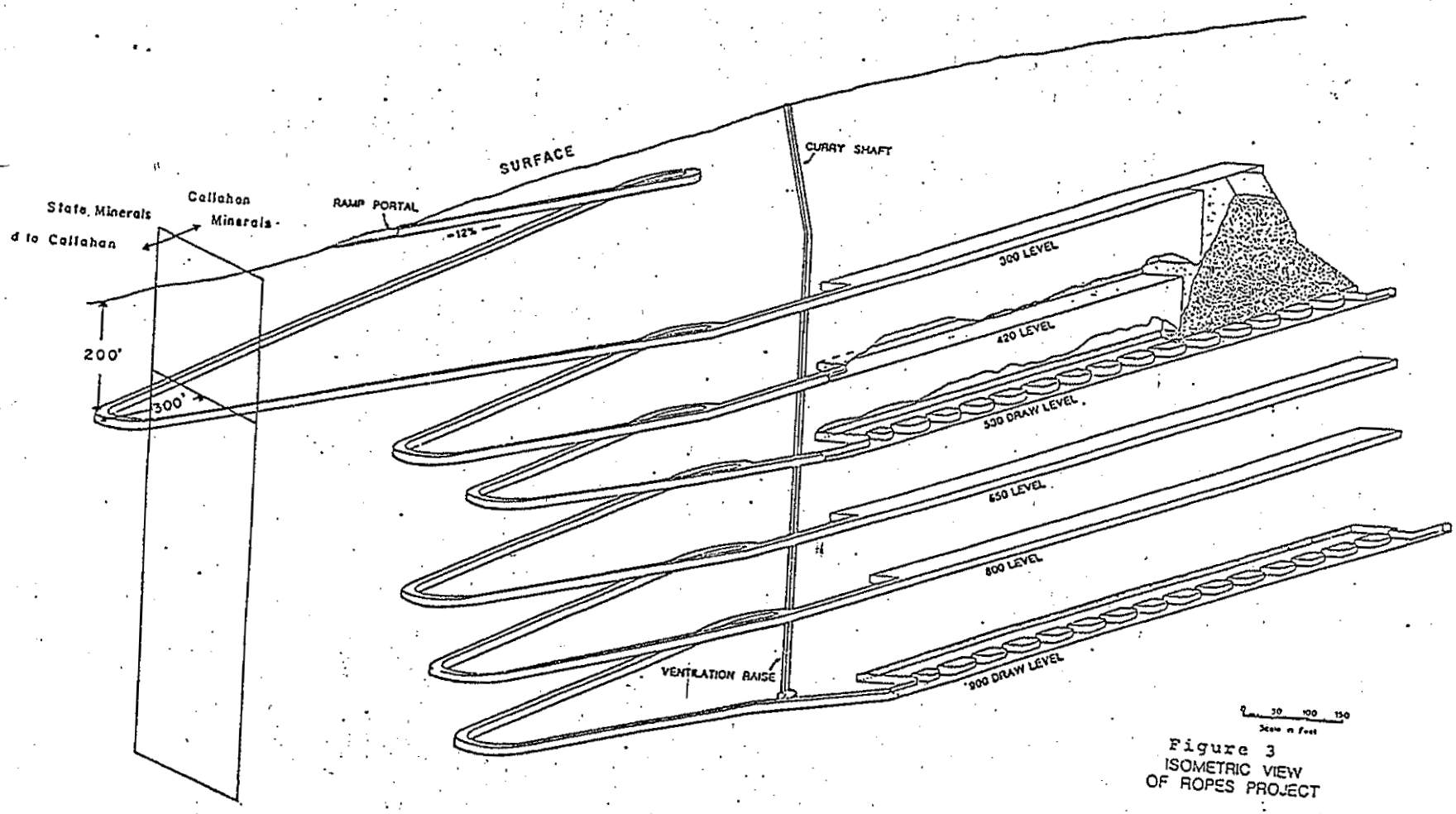
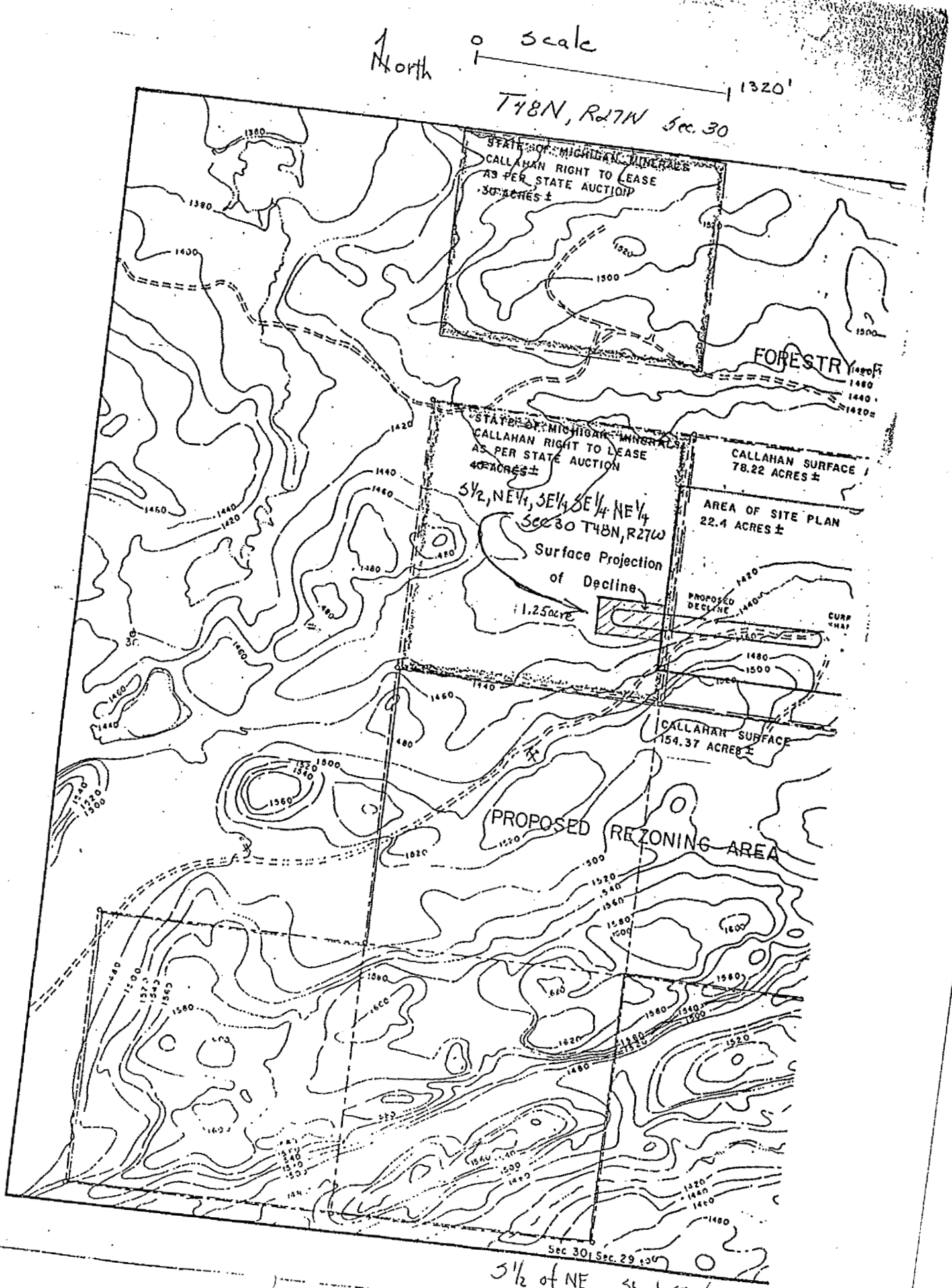


Figure 3
ISOMETRIC VIEW
OF ROPES PROJECT


North
Scale
1320'
T48N, R27W Sec. 30
STATE OF MICHIGAN MINERALS
CALLAHAN RIGHT TO LEASE
AS PER STATE AUCTION
30 ACRES ±
FORESTRY
STATE OF MICHIGAN MINERALS
CALLAHAN RIGHT TO LEASE
AS PER STATE AUCTION
40 ACRES ±
CALLAHAN SURFACE
78.22 ACRES ±
AREA OF SITE PLAN
22.4 ACRES ±
S½, NE¼, SE¼ SE¼ NE¼
Sec 30 T48N, R27W
Surface Projection
of Decline
1.25 acre
PROPOSED DECLINE
CALLAHAN SURFACE
154.37 ACRES ±
PROPOSED REZONING AREA
Sec 30
Sec. 29
S½ of NE
SE of SE of NE

Minerals Processing Corporation

612 S. Trenton Avenue
Pittsburgh, PA 15221
phone (412) 371-8554
fax (412) 371-9984

Plant:
4547 County Road 601
Champion, MI 49814

March 29, 1995

Mr. Steve Casey
Surface Water Quality Division
Michigan Department of Natural Resources
1990 U.S. 41 South
Marquette, MI 49855

Dear Steve:

Enclosed is a brief and general description of our planned activities at the Ropes Mill. As we discussed, we are still in the process of evaluating a large number of materials for processing at the mill, and have not yet developed a detailed process description and materials characterization for them.

Of the materials listed however, the talc and graphite are furthest advanced, and I have provided some additional information on these materials.

When you have had an opportunity to look this over, I would like to get together to discuss different options for solid and liquid waste disposal, as well as a plan for beginning the permitting phase. If you have any questions, let me know.

Sincerely,

Tom

Thomas O. Quigley

TOQ/rq
Enclosures

file: mpccasey

Minerals Processing Corporation

Introduction

Minerals Processing Corporation (MPC) is a privately held Michigan Corporation formed to purchase and operate the Ropes mill as a beneficiating facility for a variety of industrial minerals and mineral by-products, and to explore and develop mineral deposits in proximity to the Ropes mill.

Proposed Activities

Proposed activities at the Ropes mill consist of crushing, grinding, flotation, filtering, and drying to produce a number of mineral products from a variety of feedstocks.

The proposed activity will involve closed circuit processing with production of dried products for sale in bulk or bags, and dried tailings in the form of filtercake (approximately 20% moisture). Process water will be filtered and returned to the circuit for re-use. Periodic discharge of process water will be necessary, as will removal and disposal of dried tailings. In some cases, both flotation concentrates and tailings both constitute products and no by-product disposal will be necessary.

Materials

Mineral By-Products

Silicon Carbide

Silicon carbide (SiC) is a manufactured compound formed from the high temperature fusion of silicon metal and carbon. The resulting compound, SiC, is highly refractory (resistant to heat, abrasion and corrosion) and finds applications as a refractory in high temperature furnace linings, as kiln furniture, and in a variety of specialized castings where protection from extreme temperature is required. It is also used as an abrasive material in cutting, polishing, and grinding applications.

As a refractory material it is produced by casting granular SiC in a matrix of clays and binders to produce blocks, bricks and other shapes. With time in service, these materials must be removed and replaced due to oxidation and thermal decomposition of the matrix. Although the scrap so generated has recycle value, MPC proposes to crush, grind and float this material to concentrate the SiC particles and create a high value product.

Alumina

Alumina (Al_2O_3) is a naturally occurring mineral (corundum, ruby, sapphire), and is also produced by high temperature processing of Al_2O_3 rich minerals. Like SiC, alumina is a highly resistant, abrasive and refractory mineral, and finds similar applications in refractory and abrasive applications, as well as in high temperature and advanced ceramics. Like SiC, granular alumina is cast in a

variety of refractory bodies which deteriorate with service time and become available as scrap. Also similar to the SiC, MPC proposes to process these materials to concentrate and recover the valuable alumina component.

Spinel

Spinel ($MgAl_2O_4$) is also a naturally occurring mineral, and is manufactured by high temperature fusion of MgO and Al_2O_3. Like the above minerals, it is highly desirable in specialized refractory applications, and is cast in a variety of bodies, which when degraded by the high temperature service environment, become available as scrap.

Graphite

Crystalline flake graphite (carbon) with metallic iron, is produced as a by-product of steel making from the tapping of molten iron from blast furnaces. MPC plans to beneficiate this material through flotation at the Ropes mill to produce a >90% pure graphite concentrate and a graphite/iron tailing.

Graphite products are used in refractories, as steel making additives, lubricants, brake linings, electric motors and batteries. Currently the U.S. imports 53,000. tons of flake graphite annually.

Industrial Minerals

Talc

Talc, ($Mg_3Si_4O_{10}(OH)_2$), and tremolite ($Ca_2Mg_5Si_8O_{22}(OH)_2$) occur together in ores mined in New York State. This material is ground and sold as a major component of many ceramic products. However, the presence of tremolite limits its applications as a filler in many materials due to the abrasive nature of the mineral. MPC plans to beneficiate this ore to produce separate talc and tremolite products, the talc finding markets as a filler in paper, plastic, and rubber, and the tremolite specialized filler and extender applications where low oil absorbency is important. Markets for these materials accessible from the Ropes facility consume 200,000 to 300,000 tons per year.

Calcium Carbonate

Ground calcium carbonate (GCC) is a widely used filler in paper, plastics, rubber, adhesives, carpet backing, caulks, and sealants. Within the Ropes region, consumption by these industries is estimated at about 900,000 tons per year.

The pulp and paper industry in particular is a large consumer of GCC, and growth in the use of GCC is predicted due to its cost advantages over precipitated grades. Because over 60% of total U.S. and Canadian paper producers are located in this region, there would be significant additional cost advantages brought about by a local producer of GCC. As with talc, preliminary

investigations of foreign sources of calcium carbonate have revealed high quality materials available at competitive costs.

Metals

Pyrite and Iron Oxide

As a major supplier of metallurgical grade pyrite and iron oxide (FeS_2, Fe_3O_4) MPC's affiliate, BPI, Inc. has expanding markets for these minerals. Test processing of materials by MPC to produce high purity pyrite, magnetite and hematite from sources in Michigan as well as existing by-product sources, has produced positive results, from processing compatible with existing circuitry at the Ropes mill.

Gold Ore

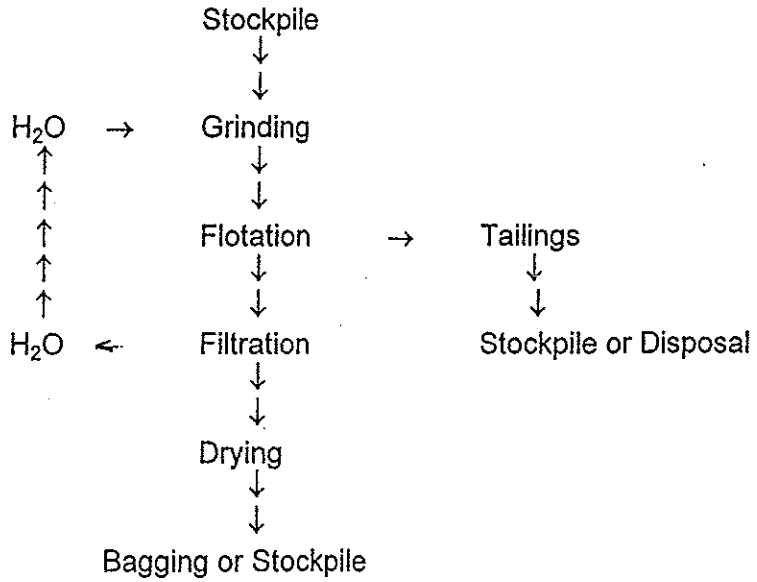
Although MPC has no current plans to develop a gold deposit in the UP, significant potential exists for the discovery of an economic deposit by MPC or others. If such were the case, MPC would seriously consider the possibility of milling ores of that nature at the Ropes facility.

Base Metals

Like gold, no base metal deposits currently exist proximal to the Ropes facility. However, there is the potential for the discovery of one. There is also potential to toll process base metal ores from existing deposits in Wisconsin.

Process Description

The general process description of the non-ore materials described above is as follows:



Quantities processed would be variable, but probably would be less than 500 tons per week. Processing would likely be undertaken on an intermittent basis with grinding and slurry storage alternating with flotation, filtration, drying and process water reclamation. The generalized flow of materials through the mill is shown in figure 1.

Generally, product from these materials would constitute 30% to 70% of the feed with the remainder being tailings.

Tailings

Tailings would be filtered, and resultant filtercake (15% to 20% H_2O) would be disposed of in an appropriate site, e.g. landfilled, existing tailings area, or dry upper pit. If necessary, tailings piles could be contoured and re-seeded to prevent dusting, erosion, etc.

In the case of high volume processing of ores or other materials on a continuous basis, direct discharge of flotation tailings would be required. This would require acquisition or construction of appropriate tailings disposal sites to facilitate tailings removal and storage.

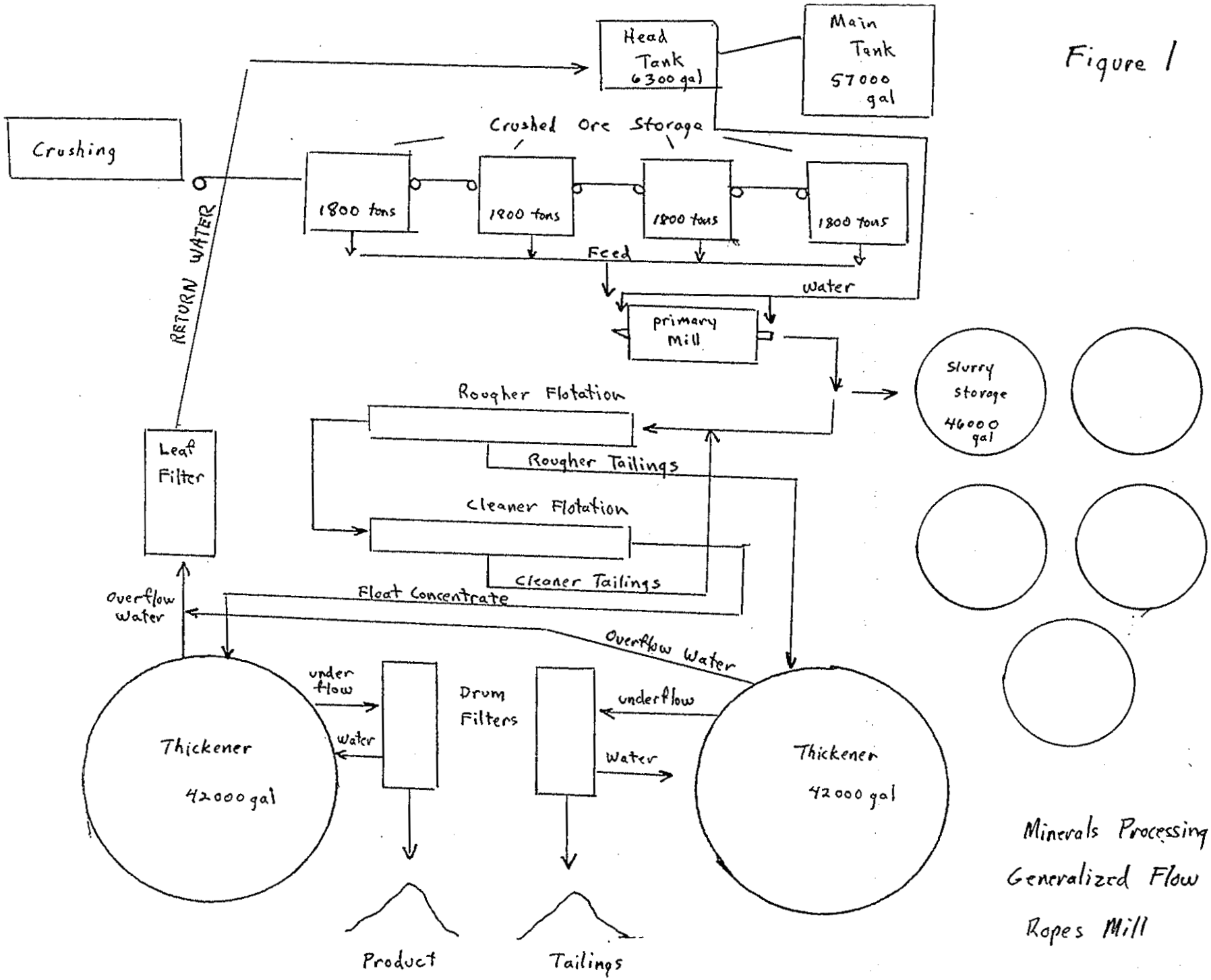
Process Water

Initial water for processing would be obtained from wells on the property, adjacent lakes, or city water if necessary. Following pulp thickening and filtration, process water would be clarified and returned to head tanks and other storage tanks for re-use.

Periodic discharge of process water would be necessary. This water could be either discharged directly into surface water, if water quality discharge limits could be met, or could be treated on site or commercially, to meet existing water quality standards.

file: mpcplan1.doc

Figure 1



Minerals Processing Corp.
Generalized Flow Sheet
Ropes Mill

Talc Ore

Mineralogy	Wt %
Talc	41
Serpentine	33
Tremolite	20
Anthopyllite	2
Calcite	2
Dolomite	1.1
Quartz	1.0

Bulk Composition	Wt %
SiO_2	55.2
MgO	30.0
CaO	8.42
Fe_2O_3	.16
Al_2O_3	.31
MnO	.17
Na_2O	.34
L.O.I.	5.41

Trace Element Chemistry

Element	Unit	Quantity	Element	Unit	Quantity
As	ppm	1.9	Cu	ppm	6.0
Co	ppm	2.0	Pb	ppm	5.0
Cr	ppm	-5.0	Ni	ppm	-5.0
Hg	ppm	-1.0	Mn	ppm	1910
Sb	ppm	.2	Cd	ppm	-.5
Se	ppm	-3.0	Bi	ppm	-.5
V	ppm	-.5			
Zn	ppm	63.0			

Graphite / Iron

Raw Composition

	Wt %
Carbon	50-70
Iron	15-25
Other	5
(see ignited basis)	

Ignited Basis

	%
S	.02
Al	.75
Fe	64.2
Mg	.05
Mn	.67
Si	1.65
Pb (ppm)	33.0

Tailing

	%
Graphitic Carbon	20
Iron	80

Size Distribution

Mesh Size	%
+25	1.3
+50	10.0
+100	40.0
-100	47.0

modification which will result in new, different, or increased discharges of pollutants must be reported by submission of a new application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the permit issuing authority of such changes."

COMPLIANCE SCHEDULE

14. On or before December 31, 1992, Callahan shall submit a report on whether wastewater will be discharged to surface or ground waters of the state from the Ropes Mine site and if a discharge is predicted, the expected quantity and quality of the discharge.

15. On or before February 1, 1993, Callahan shall submit to the MDNR a report on results of "indicator species procedure" bioassays and/or other work done to modify proposed final effluent limitations. Such report may not be a final one, depending upon the results of the study to the stated date. If Callahan believes more time is required to complete the study it shall so notify the MDNR in writing, making clear Callahan's reasoning. The MDNR shall promptly respond, giving due consideration to Callahan's request for an extension of time.

16. On or before February 1, 1993, Callahan shall submit a report on the status of groundwater quality in the vicinity of Humboldt Mill, including the area just south of the mill (where pyrite tailings were stored, both before and after processing), with a proposal for remediation, if needed.

17. On or before March 31, 1993, Callahan shall submit the results of the "Tailings Study" as outlined on page 7 in the July 26, 1990 draft NPDES permit (Attachment A).

18. Callahan shall submit plans and specifications to the MDNR for timely comment for a proposed treatment system for wastewaters from the Humboldt Mill site within 180 days of the public notice of the reissued NPDES Permit.

19. Callahan shall commence construction of the approved treatment system if a treatment system is required (pursuant to paragraph 18) within 300 days of the public notice of the reissued NPDES Permit.

20. Callahan shall commence operation of all mechanical/chemical treatment processes constructed (pursuant to paragraph 19) within 495 days after public notice of the NPDES Permit. Final effluent limitations contained in the reissued NPDES permit become effective at this time if biological treatment is not proposed. In the event that the Permit has not been reissued, NPDES Permit No. MI 0044393 issued September 19, 1985, will be in effect.

21. On November 15, 1996, final effluent limits contained in the reissued NPDES permit shall apply, regardless of the treatment system chosen.

22. Callahan shall conduct environmentally beneficial projects with a cash value of not less than $50,000 at the mine and mill sites such as those outlined in William Boyd's September 28, 1992 letter to Thomas Rohrer (Attachment B). These improvements must be activities beyond that required by this consent order and statute or rules for site closure and restoration and must be done in full compliance with State and Federal laws and rules. All projects must be approved in advance by the Surface Water Quality Division. Callahan agrees to provide the MDNR with a full accounting of the costs of these projects.

23. In the event that the performance by Callahan of any of its obligations or undertakings in this Consent Order shall be interrupted or delayed by any occurrence of whatever kind or nature not occasioned by its conduct or omissions, whether such occurrence be an act of God or the common enemy or the result of war, riot, civil commotion, sovereign conduct, natural disaster, or the act, conduct or omission of any person or persons not a party or privy hereto, then Callahan shall be excused from such performance during such occurrence and only for such a period thereafter which is reasonably necessary to remedy the effects of the occurrence, if any, and during such periods of excused performance, Callahan shall not be assessable for any stipulated penalties which have otherwise been agreed upon between the parties as set forth herein. Callahan shall have the burden in all cases of demonstrating that the delay could not have been avoided or overcome by Callahan's exercising due diligence.

ECONOMIC SETTLEMENT

24. Callahan agrees to pay TEN THOUSAND DOLLARS ($10,000) as compensation for the cost of compliance and enforcement activities and future oversight actions arising from the discharge of wastewater containing high levels of copper and nickel into waters of the state and for violations of NPDES Permit No. MI0044393.

25. Callahan agrees to pay FORTY THOUSAND DOLLARS ($40,000) to the Game and Fish Protection Trust Fund for all violations of 1929 PA 245, as amended, occurring at the Humboldt Mill site prior to entry of this order.

26. Callahan agrees to conduct environmentally beneficial projects, as described in paragraph 22, having a value of at least FIFTY THOUSAND DOLLARS ($50,000).

27. Callahan agrees to pay stipulated penalties of ONE HUNDRED DOLLARS ($100) to the general fund of the State of Michigan for each day of violation of compliance dates contained in paragraphs 14 through 19 of this Order.

28. Callahan agrees to pay stipulated penalties of FIVE HUNDRED DOLLARS ($500) to the general fund of the State of Michigan for each day of violation of the compliance dates contained in paragraphs 20 and 21 of this Order.

29. Callahan shall pay all funds due pursuant to this agreement by check made payable to the State of Michigan and delivered to the Assistant Attorney General-In-Charge, Environmental Protection Division, Michigan Department of Attorney General, P.O. Box 30212, Lansing, Michigan 48909. All funds shall be paid within 30 days of entry of this agreement.

JURISDICTION

THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES retains jurisdiction to enforce the terms and conditions of this Order, to enter additional Orders, and to take such other actions as the Department deems necessary for this or any subsequent violation of the Michigan Water Resources Commission Act, or any other violations of Natural Resource or Environmental Protection laws and rules.

--DNRDC
--DNRDC
LUNDP--DNRDC

Date and time 08/31/95 14:39:08
SAALFELG--DNRDC
RYDQUISJ--DNRDC

From: Steve
Subject: Meeting with Callahan

Here's an update on the Humboldt Pit discharge, an issue never seems to end.

Callahan Mining's new environmental director, Luke Russell and staff (Randy Weimer and Bill Scarffe) met with Jim Rice and I to give a status report on their progress in remediating the Humboldt Pit discharge. At this time, nickel is the only parameter of concern in the discharge. Nickel levels have continued to fall, even without addition of phosphorus this year. They will be submitting a report to me and Taft. They say that the report concludes that the phosphorus levels in the pit are adequate to stimulate algae blooms (eg no further addition is warranted at this time) and that the majority of the Ni in the pit got there during the milling operation. The report also concludes that the tailings in the pit are an insignificant ongoing source of Ni to the pit discharge (~.2 lb/yr,which equals about .5 ug/l in the discharge). They will also submit phos and phytoplankton sampling data from the pit and another bio monitoring report for the marsh/river (Seegert).

Bill and I need to review the reports and be prepared for the early December meeting that we committed to. We will need to decide whether to reissue their permit with a Ni limit, continue monitoring the discharge or revoke (inactivate?) the existing permit. This decision will hinge around what we believe the appropriate Ni limit to be . . . eg does the dissolved metals approach combined with additional bio data from the marsh change our position on the appropriate Ni level in this discharge (our position was 130 ug/l, they wanted 248 ug/l).

Bill, look forward to some reading material. I'd like to see a reevaluation of their nickel limit after you've digested their submittals . . . please carry that message to your watershed team.

Steve

cc: ROHRERT --DNRDC
TAFTW --DNRDC

From: CASEYS --DNRDC Date and time 06/03/96 10:38:16
To: BOERSENG--DNRDC SAALFELG--DNRDC
ROHRERT --DNRDC

From: Steve
Subject: Callahan Mine Letter Requesting Closure Requirements

Callahan Mine proposed "closure criteria" for their Humboldt MI11 in their April 11 letter to me. They will be in Marquette on June 12 and would like a conference call/meeting on their request.

I'd like to discuss their request internally Monday (6/10) at 9:00 am. They are flexible for June 12, please let me know if you or your staff are available at 10:00 am on the 12th.

In a nutshell, they'd like to have their permit and ACO terminated when the average annual nickel level in the pit discharge drops below 130 ug/l (our proposed limit to protect the marsh).

The ACO expires on 12/1/96 anyways, unless we've PN'ed a permit which they need to construct additional facilities for. I'll be out of the office most of this week. Please let me know today if the meeting times are OK, as I'll be finalizing the times with Callahan.

Steve

cc: TAFTW --DNRDC RYDQUISJ--DNRDC